

Title (en)

METHOD FOR GENERATING AT LEAST ONE DETERMINISTIC F-CENTRE IN A DIAMOND LAYER, DIAMOND LAYER WITH AT LEAST ONE DETERMINISTIC F-CENTRE AND DOPANTS AND USE OF A DIAMOND LAYER WITH AT LEAST ONE DETERMINISTIC F-CENTRE

Title (de)

VERFAHREN ZUR ERZEUGUNG ZUMINDEST EINES DETERMINISTISCHEN FARBZENTRUMS IN EINER DIAMANTSCHICHT, DIAMANTSCHICHT MIT ZUMINDEST EINEM DETERMINISTISCHEN NV-ZENTRUM UND DOTANDEN SOWIE VERWENDUNG EINER DIAMANTSCHICHT MIT ZUMINDEST EINEM DETERMINISTISCHEN FARBZENTRUM

Title (fr)

PROCÉDÉ DE PRODUCTION D'AU MOINS UN CENTRE DE COULEUR DÉTERMINISTE DANS UNE COUCHE DE DIAMANT, COUCHE DE DIAMANT AVEC AU MOINS UN CENTRE DE COULEUR DÉTERMINISTE ET DES DOPANTS ET UTILISATION D'UNE COUCHE DE DIAMANT AVEC AU MOINS UN CENTRE DE COULEUR DÉTERMINISTE

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Application

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Abstract (en)

[origin: WO2020260640A1] The invention relates to a method for generating at least one deterministic F-centre in a diamond layer. By implanting at least one dopant in the diamond layer in a first step and incorporating at least one foreign atom in the diamond layer by means of low-energy ion bombardment for the formation of the F-centre in a second step, very high conversion rates of greater than 70% can be achieved. This is a significant increase in relation to undoped diamond, in which the conversion rates are only around 6%. Via doping with a donor, such as phosphorous, oxygen or sulphur, a very good conversion into negatively charged F-centres can be achieved, which are used for Qubit applications.

IPC 8 full level

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MELTON CHARLES E. ET AL: "Experimental evidence that oxygen is the principal impurity in natural diamonds", NATURE, vol. 263, no. 5575, 1 September 1976 (1976-09-01), London, pages 309 - 310, XP055802494, ISSN: 0028-0836, Retrieved from the Internet <URL:http://www.nature.com/articles/263309a0.pdf> DOI: 10.1038/263309a0

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